

CLAIMS:

1. A method for determining a measure of tempo ambiguity for a music input signal (1), which method comprises:
 - identifying candidate tempos (2) of the music input signal (1);
 - ranking the candidate tempos (2) according to their relative strengths;
 - 5 - compiling a tempo scheme (4) comprising the relationship of the ranked candidate tempos (2') to each other.
2. A method according to claim 1 wherein a dominant tempo and any subordinate tempos are identified among the candidate tempos (2).
- 10 3. A method according to claim 1 or claim 2, wherein the tempo ambiguity scheme (4) is assigned to the music input signal (1).
4. A method according to claim 3, wherein the tempo ambiguity scheme (4) is
15 combined with the music input signal (1) in a music file (6).
5. A system (7) for determining a measure of tempo ambiguity for a music input signal (1), said system comprising:
 - a tempo identifying unit (8) for identifying candidate tempos (2) in the music
20 input signal (1);
 - a ranking unit (9) for ranking the candidate tempos (2) according to their relative strengths; and
 - a tempo scheme compiler (10) to compile a tempo scheme (4) comprising the relationship of the ranked candidate tempos (2') to each other.
- 25 6. The system of claim 5, wherein the tempo identifying unit (8) comprises a plurality of band-pass filters (11) for splitting a music input signal into different frequency bands, a plurality of resonator filter-banks (12) for identifying candidate tempos in each of the frequency bands, a plurality of resonator energy calculators (13) for calculating an energy

value for each resonator filter of the resonator filter-banks (12) and a plurality of energy summation units (14) for summing the calculated energy values for like resonators of the different frequency bands.

- 5 7. An audio processing device for choosing a piece of music according to a particular tempo scheme generated by a method according to any of the claims 1 to 4.
8. An audio processing device according to claim 7 including a system according to any of claims 5 or 6.
- 10 9. An audio processing device according to claim 7 or 8 comprising a music query system for choosing a music data file from a database on the basis of a particular tempo scheme.
- 15 10. An audio processing device according to any of the claims 7 to 9 comprising an automatic DJ apparatus for choosing pieces of music from a music database according to a user-defined tempo scheme so that cross-fading with minimal tempo discrepancy between subsequent pieces of music is achieved.
- 20 11. Exercise apparatus or training device comprising an audio processing device according to any of the claims 7 to 9 for selecting on the basis of tempo scheme a piece of music to suit a user's requirements for exercising at a desired tempo.
- 25 12. A computer program product directly loadable into the memory of a programmable audio processing device comprising software code portions for performing the steps of a method according to claims 1 to 4 when said product is run on the audio processing device.
- 30 13. A memory medium storing a music data file and its associated tempo scheme linked to or combined with it according to method 3 or 4.